Curriculum Vitae
ANTHONY PAUL BRETSCHER

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Education:

1971	BA University of Cambridge, UK. Experimental Physics
1974	MA University of Cambridge, UK
1974	PhD University of Leeds. Bacterial Genetics. Advisor: Dr. Simon Baumberg
1974-1977	EMBO Postdoctoral Fellow, Stanford University, CA Advisor: Dr. A. Dale Kaiser
1977-1980	Max Planck Society Fellow, Max Planck Institute for Biophysical Chemistry. Goettingen, Germany. Advisor: Dr. Klaus Weber.

Academic Appointments:

1980-1981	Assistant Professor, Department of Cell Biology, Southwestern Medical School, Dallas, TX
1981-1999	Assistant (1981-1987), Associate (1987-1993), Professor (1993-1999) Section of Biochemistry, Molecular and Cell Biology, Cornell University
1999-present	Professor of Cell Biology, Department of Molecular Biology and Genetics, Cornell University, NY
2007-present	Member, Weill Institute for Cell and Molecular Biology

Administrative Appointments:

2007-2011	Associate Director, Weill Institute for Cell and Molecular Biology

Society Membership and Honors:

1980- present	American Society for Cell Biology
1982-present	American Association for the Advancement of Science (AAAS)
2009	Elected Fellow, AAAS
2010	Elected Fellow, American Academy of Microbiology

National Committee Service:

Vice-Chair, Jacques Monod/EMBO/NATO Conference, Microfilament function and regulation in cell polarity, Presqu'ile de Giens, France 2001

Chair, Special Symposium Committee, ASCB 2002

Co-Chair 2004, Chair 2006 Plant and Fungal Cytoskeleton Gordon Conference

Chair, Search Committee for Editor-in-chief of *Molecular Biology of the Cell* 2004

ASCB Council Member 2003-2005

Member, ASCB Image Library 2004-2006

Chair, Program Committee ASCB Annual Meeting 2006

Member, Program Committee ASCB Annual Meeting 2007

Chair, ASCB Bernfield/Gilula joint selection committee 2007

Study Sections:

American Cancer Society, Cell and Developmental Biology Advisory Board 1987-1991

NIH Molecular Cytology Study Section, Ad Hoc Member 1991, 1993

NIH Physiological Chemistry, Ad Hoc Member 1992

NIH Cell Biology and Physiology I, Ad Hoc Member 1992

National Neurofibromatosis Foundation (now Children's Tumor Foundation) Research Advisory Board, 2000-2006

NIH CDF-4 Study Section, Member 2002-2004

Editorial Boards:

The Journal of Cell Science, 1988-present

Cell Motility and the Cytoskeleton, 1994-2001

The Journal of Biological Chemistry, 1998-1999 (resigned)

Molecular Biology of the Cell, 1998-2005 (resigned)

The Journal of Cell Biology, 2001-present

Teaching:

BioBM 432: Survey of Cell Biology 1983, 1984

BioBM 636: Advanced Cell Biology/Functional Organization of Eucaryotic Cells 1985, 1986, 1987,1988, 1989 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1998, 1999, 2000, 2001, 2003, 2004, 2005, 2006, 2007, 2009

BioGD: Current Topics in Genetics 2003

BioBM733: Current Topics Minicourse: Cell Polarity 2000, 2008

BioBM 1350: Cell and Developmental Biology 2010

BioMG 1350: Principles of Cell and Developmental Biology 2011, 2012

Postdoctoral Fellows/Research Associates with current positions (where known):

Charles McOsker, 1981-1984 CEO Airway Therapeutics (November 2008 - July 2010), Cincinnati, OH
Lynne Coluccio 1986-1989 Senior Scientist, Boston Biomedical Research Institute
Zsofia Franck, 1989-1993, Nurse
Tongtong Wang, 1995-1997 Director, Molecular Biology, Fermentation, and Cell Culture Eli Lilly & Company
Mark Berryman, 1992-1999 Associate Professor, University of Ohio, Athens, OH
David Reczek, 1998-2001 Associate Director, Genzyme
David Pruyne, 1999-2008 Assistant Professor, SUNY Upstate Medical University
Casey Finnerty, 1999-2003 Assistant Professor Saint Mary's University,Winona, MN
Yuqing Dong, 1999-2004 Assistant Professor, Clemson University
Daniel Schott, 2000-2003 Research Associate, Harvard University
Julie Thoms, 2003-2006 Postdoc, University of Sydney, Australia
Aster Legesse-Miller, 2002-2006 Research Associate, Princeton University
Tal Ilani, 2003-2008 Research Associate, Weizmann Institute, Israel
Felipe Santiago-Tirado, 2011-2012. Postdoc, Washington University
Ifat Sher, 2008-2011. Research Associate, Israel
David Lalonde, 2006-present
David Hokanson, 2008-present
Irina Chernyakov, 2009-present
Cecile Sauvanet 2012-present

Graduate Students with current positions (where known):

Verner, Keith, PhD 1985 President, Cognitive Learning Systems, Hershey, PA
Riseman, Victoria, PhD 1988 Deceased
Lynch, William, PhD 1988 Associate Professor, Ohio State University
Nefsky, Bradley, PhD 1990 Assistant Professor, Drexel University
Burlak, Linda, MS 1987
Liu, Haoping, PhD 1990 Associate Professor, UC Irvine
Chen-Dobson, Elizabeth, PhD 1993 Merck Research Laboratories
Ye, Ruby, PhD 1993, Mother
Gary, Ron, PhD 1995 Associate Professor, University of Nevada
Drees, Beth, PhD 1995. Licensing Manager at University of Utah Technology Commercialization Office
Harsay, Edina, PhD 1996 Assistant Professor, University of Kansas
Reczek, David, PhD 1998 Associate Director, Therapeutic Protein Discovery Research, Genzyme
David Pruyne, PhD 1998 Assistant Professor, SUNY Upstate Medical University
Schott, Daniel, PhD 1999 Postdoc, Harvard University
Young, James, Left without graduating
Chambers, David, PhD 2004 Assistant Professor Concord University
Hanono, Abraham, PhD 2005 High School Teacher, San Diego
Gao, Lina, PhD 2008 Postdoc, Portland Medical Center
Santiago-Tirado, Felipe, PhD 2011, Postdoc, Washington University

Liu, Wenyu, 2005-2011. Mother
Viswanatha, Raghuvir, 2005-present Current student
Garbett, Damien, 2006-present Current student
Jessica Wayt, 2009-present Current Student
Kirk Donovan, 2009-present Current Student
Donghao Li, 2010-present Current Student

Books: Lodish, H., Berk, A., Kaiser, C., Krieger, M., Scott, M., Bretscher, A., Ploegh, H. & Matsudaira, P. (2008). Molecular Biology of the Cell, 6th. edition.

Lodish H., Berk, A., Kaiser, C., Krieger, M., Bretscher, A., Ploegh, H., Amon, A., Scott, M. (2012) Molecular Biology of the Cell, 7th edition.

Publications (abstracts not included):

1. Bretscher, A.P. (1974). Control mutations in the arginine cluster of Escherichia coli K12. Ph.D. Thesis, University of Leeds, England.

2. Bretscher, A. P. and Baumberg, S. (1976). Divergent transcription of the argECBH cluster of Escherichia coli K-12. Mutations which alter the control of enzyme synthesis. J. Mol. Biol. 102, 205-220. PMID: 775103

3. Bretscher, A. P. and Kaiser, A. D. (1978). Nutrition of Myxococcus xanthus, a fruiting Myxobacterium. J. Bacteriol. 133, 763-768. PMID: 415048

4. Hagen, D. Bretscher, A. P. and Kaiser, A. D. (1978). Synergism between morphogenetic mutants of Myxococcus xanthus. Develop. Biol. 64, 284-296. PMID: 98366

5. Bretscher, A. and Weber, K. (1978). Tropomyosin from bovine brain contains two polypeptides of slightly different molecular weights. FEBS Lett. 85, 145-148. PMID: 620785

6. Bretscher, A. and Weber, K. (1978). Purification of microvilli and analysis of the protein components of the microfilament core bundle. Exp. Cell Res. 116, 397-407. PMID: 568557

7. Bretscher, A. and Weber, K. (1978). Localization of actin and microfilament-associated proteins in the microvilli and terminal web of the intestinal brush border by immunofluorescence microscopy. J. Cell Biol. 79, 839-845. PMID: 365871

8. Bretscher, A. and Weber, K. (1979). Villin: the major microfilament-associated protein of the intestinal microvillus. Proc. Natl. Acad. Sci. USA 76, 2321-2325. PMID: 287075

9. Bretscher, A., Vandekerckhove, J. and Weber, K. (1979). Alpha-actinins from chicken skeletal muscle and smooth muscle show considerable chemical and immunological differences. Europ. J. Biochem. 100, 237-243. PMID: 90613

10. Bretscher, A. and Weber, K. (1980). Villin is a major protein of the microvillus cytoskeleton which binds both G- and F-actin in a calcium dependent manner. Cell 20, 839-847. PMID: 6893424

11. Bretscher, A. and Weber, K. (1980). Fimbrin: a new microfilament-associated protein present in microvilli and other cell surface structures. J. Cell Biol. 86, 335-340. PMID: 6998986

12. Bruder, G., Bretscher, A., Franke, W. W. and Jarasch, E.-D. (1980). Plasma membranes from intestinal microvilli and erythrocytes contain cytochromes b_5 and P-420. Biochim. Biophys. Acta 600, 739-755. PMID: 7407143

13. Glenney, J. R., Bretscher, A. and Weber, K. (1980). Calcium control of the intestinal microvillus cytoskeleton: its implications for the regulation of microfilament organizations. Proc. Natl. Acad. Sci. USA 77, 6458-6482. PMID: 6935660

14. Bretscher., A., Osborn, M., Wehland, J. and Weber, K. (1981). Villin associates with specific microfilamentous structures as seen by immunofluorescence microscopy on tissue sections and cells microinjected with villin. Exp. Cell Res. 135, 213-219. PMID: 7026267

15. Bretscher, A. (1981). Fimbrin is a cytoskeletal protein that cross-links F-actin in vitro. Proc. Natl. Acad. Sci. USA 78, 6849-6853. PMID: 6947259

16. Bretscher, A. (1982). Characterization and ultrastructural role of the major components of the intestinal microvillus cytoskeleton. Cold Spring Harbor. Symp. Quant. Biol. 46, 871-879. PMID: 7049538

17. Flock, A., Bretscher, A. and Weber, K. (1982). Immunohistochemical localization of several cytoskeletal proteins in inner ear sensory and supporting cells. Hearing Res. 6, 75-89.

18. Verner, K. and Bretscher, A. (1983). Induced morphological changes in isolated microvilli: regulation of membrane topology in vitro by submembranous microfilaments. Europ. J. Cell Bio. 29, 187-192. PMID: 6682042

19. Bretscher, A. (1983) The molecular architecture of the microvillus cytoskeleton. Ciba Foundation Symp. No. 95 'Brush Border Membranes', pp. 164-179. PMID: 6342995

20. Bretscher, A. (1983) Microfilament organization in the cytoskeleton of the intestinal brush border. In Cell and Muscle Motility (Dowben, R. M. and Shay, J. W. Eds) Vol IV, 239-268. PMID: 6367959

21. Bretscher, A. (1983). Purification of an 80,000 dalton protein that is a component of the isolated microvillus cytoskeleton, and its localization in non-muscle cells. J. Cell Biol. 97, 425-432. PMID: 6885906

22. Bretscher, A. (1984). Smooth muscle caldesmon: rapid purification and F-actin cross-linking properties. J. Biol. Chem. 259, 12873-12880. PMID: 6092349

23. Verner, K. and Bretscher, A. (1985). Microvillus 110K-calmodulin: effects of nucleotides on isolated cytoskeletons and the interaction of the purified complex with F-actin. J. Cell Biol. 100, 1455-1465. PMID: 3157690

24. Bretscher, A. and Lynch, W. (1985). Identification and localization of immunoreactive forms of caldesmon in smooth and non-muscle cells: a comparison with the distributions of tropomyosin and α-actinin. J. Cell Biol. 100, 1656-1663. PMID: 2985624

25. Bretscher, A. (1985). Surveying the Cytoskeleton. Review of Cell and Muscle Motility vol. 6. Cell 43, 563-564.

26. McOsker, C. and Bretscher, A. (1986). Fodrin is part of the detergent resistant cytoskeleton before and after cytochalasin treatment. European J. Cell Biol. 39, 321-327. PMID: 3514218

27. Carley, W., Bretscher, A. and Webb, W. W. (1986). F-actin aggregates in transformed cells contain fimbrin and α-actinin but apparently lack tropomyosin. Europ. J. Cell Biol. 39, 313-320. PMID: 3007147

28. Gould, K. L., Cooper, J. A., Bretscher, A. and Hunter, T. (1986). The protein-tyrosine kinase substrate, p81, is homologous to a chicken microvillar core protein. J. Cell Biol. 102, 660-669. PMID: 2418035

29. Bretscher, A. (1986) Thin filament regulatory proteins of smooth- and non-muscle cells. Nature (Lond.) 321, 726-727. PMID: 3713859

30. Bretscher, A. (1986) The molecular structure of the microvillar cytoskeleton. In "Ion gradient-coupled transport" (Alvarado, F & Van Os, C. Eds.) Inserm Symposium Series, Vol 26, 13-21.

31. Bretscher, A. (1986). Purification of the intestinal microvillus cytoskeletal proteins villin, fimbrin and ezrin. In Structural and Contractile Proteins, Part D (R. Vallee, Ed.) A volume of Methods in Enzymology, 134, 24-37. PMID: 3821564

32. Lynch, W. and Bretscher, A. (1986). Purification of caldesmon. In Structural and Contractile Proteins, Part D (R. Vallee, Ed.). A volume of Methods in Enzymology. 134, 37-42. PMID: 3821568

33. Lynch, W., Riseman, V. & Bretscher, A. (1987). Smooth muscle caldesmon is an extended flexible monomeric protein in solution that can readily undergo reversible intra- and inter-molecular sulfhydryl cross-linking: A mechanism for caldesmon's F-actin bundling activity. J. Biol. Chem. 262, 7429-7437. PMID: 3584120

34. Coluccio, L. M. & Bretscher, A. (1987). Calcium-regulated cooperative binding of the microvillar 110K-calmodulin complex to F-actin: Formation of decorated filaments. J. Cell Biol. 105, 325-333. PMID: 2956267

35. Krizek, J., Coluccio, L. M. & Bretscher, A. (1987). ATPase activity of the microvillar 110K-calmodulin complex is activated in Mg^{2+} and inhibited in K^{+}EDTA by F-actin. FEBS Lett. 225, 269-272. PMID: 2961614

36. Coluccio, L. M. & Bretscher, A. (1988). Mapping of the microvillar 110K-calmodulin complex: Calmodulin-associated or -free fragments of the 110 kd polypeptide bind F-actin and retain ATPase activity. J. Cell Biol. 106, 367-373. PMID: 2963011

37. Colucccio, L. M. & Bretscher, A. (1989). Reassociation of microvillar core proteins: making a microvillar core in vitro. J. Cell Biol. 108, 495-502. PMID: 2918023

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39. Liu, H. & Bretscher, A. (1989). Disruption of the single tropomyosin gene in yeast leads to a disappearance of actin cables from the cytoskeleton. Cell 57, 233-242. PMID: 2649250

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42. Bretscher, A. (1989). Rapid phosphorylation and reorganization of ezrin and spectrin accompany morphological changes in A-431 cells induced by EGF. J. Cell Biol.108, 921-930. PMID: 2646308

43. Nefsky, B. & Bretscher, A. (1989). Landmark mapping: a general method for localizing cysteine residues in a protein. Proc. Natl. Acad. Sci. U. S. A. 86, 3549-3553. PMID: 2726736

44. Gould, K.L., Bretscher, A., Esch, F. S. and Hunter, T. (1989). cDNA cloning and sequencing of the protein-tyrosine kinase substrate, ezrin, reveals homology to band 4.1. EMBO J. 8, 4133-4142. PMID: 2591371

45. Tilney, M.S., Tilney, L. G., Stephens, R. E., Merte, C., Drenckhahn, D., Cotanche, D. A. & Bretscher, A. (1989). Preliminary biochemical characterization of the stereocilia and cuticular plate of hair cells of the chick cochlea. J. Cell Biol. 109, 1711-1724. PMID: 2677026

46. Franck, Z., Footer, M. & Bretscher, A. (1990). Microinjection of villin into cultured cells results in rapid and long-lasting changes in cell morphology, but does not interfere with cytokinesis, cell motility or membrane ruffling. J. Cell Biol. 111, 2475-2485. PMID: 2277069

47. Coluccio, L.M. & Bretscher, A. (1990). Mapping of the microvillar 110K-calmodulin complex (brush border myosin I). Identification of fragments containing the catalytic and F-actin binding sites and demonstration of a calcium-ion-dependent conformational change. Biochemistry 29, 11089-11094. PMID: 2271696

48. Huffaker, T. C. & Bretscher, A. P. (1991). Strategies for cloning and analyzing genes encoding cytoskeletal proteins in the yeast Saccharomyces cerevisiae. In Molecular Motors and the Cytoskeleton (R. Vallee, Ed.) Methods in Enzymology. 196, 355-368. PMID: 2034130

49. Hanzel, D., Reggio, H., Bretscher, A., Forte, J.G. & Mangeat, P. (1991). The secretion-stimulated 80K phosphoprotein of parietal cells is ezrin, and has the properties of a membrane cytoskeletal linker in the induced apical microvilli. EMBO J. 10, 2363-2373. PMID: 1831124

50. Bretscher, A. (1991). Molecular aspects of microfilament structure and assembly. Current Opinion in Structural Biology. 1, 281-287. PMID:

51. Bretscher, A. (1991). Microfilament structure and function in the cortical cytoskeleton. Ann. Rev. Cell Biol. 7, 337-374. PMID: 1839710

52. Ye, R. R. & Bretscher, A. (1992). Identification and molecular characterization of a calmodulin-binding subunit gene (CMP1) of protein phosphatase 2B from *Saccharomyces cerevisiae;* an a-factor inducible gene. Europ. J. Biochem., 204: 713-723. PMID: 1311678

53. Nefsky, B. & Bretscher, A. (1992). Yeast actin is relatively well behaved. Europ. J. Biochem. 206: 949-955. PMID: 1606973

54. Liu, H. & Bretscher, A. (1992) Characterization of *TPM1* disrupted yeast cells indicates an involvement of tropomyosin in directed vesicular transport J. Cell Biol. 118: 285-299. PMID: 1629236

55. Liu, H., Krizek J. & Bretscher, A. (1992). Construction of a *GAL1* -regulated yeast cDNA expression library and its application to the identification of genes whose overexpression causes lethality in yeast. Genetics 132: 665-673. PMID: 1468625

56. Egerton, M., Burgess, W. H., Chen, D., Druker, B. J., Bretscher, A. & Samelson, L. E. (1992). Identification of ezrin as an 81kDa tyrosine phosphorylated protein in T cells. J. Immunology. 149: 1847-1852. PMID: 1381389

57. Franck, Z., Gary, R. & Bretscher, A. (1993). Moesin, like ezrin, colocalizes with actin in the cortical cytoskeleton, but its expression is more variable. J. Cell Sci.. 105: 219-232. PMID: 8360275

58. Berryman, M., Franck, Z. & Bretscher, A. (1993). Ezrin is concentrated in the apical microvilli of a wide variety of epithelial cells, whereas moesin is found primarily in endothelial cells. J. Cell Sci. 105: 1025-1043. PMID: 8227193

59. Gary, R and Bretscher, A. (1993). Heterotypic and homotypic associations between ezrin and moesin, two putative membrane-cytoskeletal linking proteins. Proc. Natl. Acad. Sci. U. S. A. 90: 10846-10850. PMID: 8248180

60. Bretscher, A. (1993) Microfilaments and Membranes. Curr. Opin. Cell Biol. 5: 653-660. PMID: 8257607

61. Footer, M. and Bretscher, A. (1994). Brush border myosin-I microinjected into cultured cells is targeted to actin-containing surface structures. J. Cell Sci. 107: 1623-1631. PMID: 7962202

62. Bretscher, A., Drees, B., Harsay, E., Schott, D. and Wang, T. (1994). What are the basic functions of microfilaments? Insights from studies in budding yeast. J. Cell Biol. 126: 821-826. PMID: 8051208

63. Drees, B., Brown, S., Barrell, B. and Bretscher, A. (1995). Tropomyosin is essential in yeast, yet the *TPM1* and *TPM2* products perform distinct functions. J. Cell Biol. 128, 383-392. PMID: 7844152

64. Wang, T. & Bretscher, A. (1995). A rho-GAP, encoded by *BEM2*, regulates microfilaments in yeast. Mol. Biol. Cell 6, 1011-1024. PMID: 7579704

65. Harsay, E. & Bretscher, A. (1995) Parallel secretory pathways to the cell surface in yeast. J. Cell Biol.131, 297-310. PMID: 7593160

66. Gary, R. & Bretscher, A. (1995). Ezrin self-association involves binding of an N-terminal domain to a normally masked C-terminal domain that includes the F-actin binding site. Mol. Biol. Cell 6, 1061-1075. PMID: 7579708

67. Berryman, M., Gary, R. & Bretscher, A. (1995) Ezrin oligomers are major cytoskeletal components of placental microvilli: their possible involvement in cortical morphogenesis. J. Cell Biol. 131 1231-1242. PMID: 8522586

68. Bretscher, A., Gary. R. & Berryman, M. (1995). Ezrin from placenta exists as stable monomers and elongated dimers. Biochemistry 34, 16830-16837. PMID: 8527459

69. Wang, T. & Bretscher, A. (1997). Mutations synthetically lethal with tpm1Δ lie in genes involved in morphogenesis. Genetics 147, 1595-1607. PMID: 9409824

70. Reczek, D., Berryman, M. & Bretscher, A. (1997). Identification of EBP50: a PDZ domain containing phosphoprotein that associates with members of the ERM family. J. Cell Biol. 139, 169-179. PMID: 9314537

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